DOCUMENT RESUME

ED 026 264 S 005 911

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[Teacher's Guides for Grade 7-Biosphere and Grade 8-Geoscope.]
Edgewood Independent School District, San Antonio, Tex.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Eucation.
Pub Date 68
Note-74p.
EDRS Price MF-$0.50 HC-$3.80
Descriptors-•Biology, •Earth Science, Grade 7, Grade 8, •Instructional Television, •Secondary Schol Science, •Teaching Guides

Provided are two teacher's guides for coordinating classroom instrucion with two instructional television series, each consisting of thirty 15-minute lessons. One guide entitled "Biosphere" is for use with seventh grade life science while tie other guide entitled "Geoscope" is for use with eighth grade earth science. Eash guide provides suggestions for coordinating the telecasts with classroom instruction, general information about the T-V series, information about the T-V instructor, a statement about the text with which the series is coordinated, and a studen lesson outline for each lesson of the series. The lesson outlines are for individual student use and are directed at focusing student attention on specific intended outcomes of the lesson. This work was prepared under ESEA Title III contract. (RS)

BESE-T Level III

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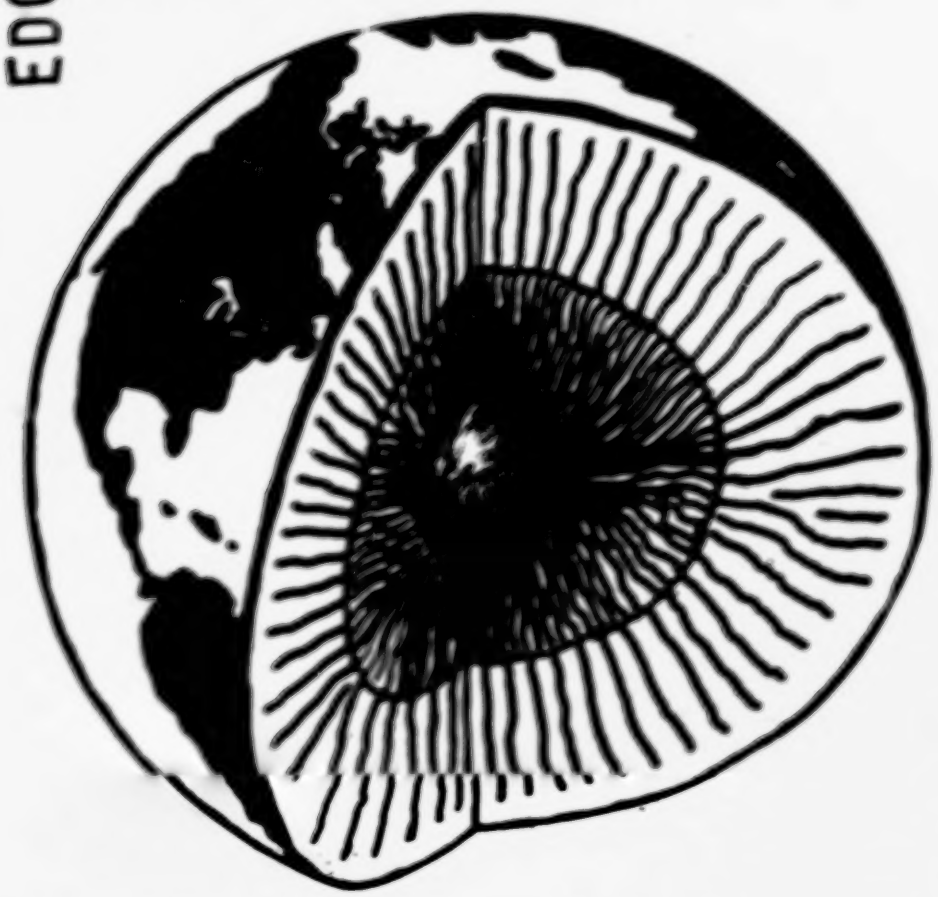
TEACHER'S GUIDE — 8

GEOSCOPE



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SE 005 911

EDGEWOOD ISD INSTRUCTIONAL TELEVISION KHS 77

GEOSCOPE

TEACHER'S TELEVISION GUIDE

FOR SCIENCE-GRADE 8

EDGEWOOD INDEPENDENT SCHOOL DISTRICT

INSTRUCTIONAL TELEVISION

KHS 77 - TV

MRS. JUNE GUERINGER, SCIENCE COORDINATOR

COORDINATOR'S MESSAGE

The science television lessons should be an integral part of the science program. In team teaching, it is quite important that we are together in our topics. Both classroom and television lessons will be more meaningful to the students if our lessons are coordinated. We have prepared this outline of television lessons to give advance notice of the topics to be covered. We hope this will help you with your planning.

Please give the lesson outline to your students before they view the lesson. The outline will help them visualize the sequence and relationship of materials in the lesson. It is important for students to take notes during the telecast. At first, note taking may be difficult, but it should be stressed because of the importance of this ability. Please develop a testing program that will encompass the televised materials as well as text materials.

The television instructor will confer regularly with the classroom teachers for the purpose of evaluation and improvement of this program. Any suggestions will be gratefully accepted. With your help, we can make television time a valuable component in the education of our students.

June Gueringer

June Gueringer

Science Coordinator

RESPONSIBILITIES OF THE CLASSROOM TEACHER

BEFORE THE TELECAST:

Turn the receiver on five minutes before the scheduled time. Using the Teacher's Guide, the classroom teacher should give the students a general idea of what will be covered on the telecast.

Arouse the students' interest.

Introduce the subject matter.

Prepare the students for the lesson.

The teacher should set up a receptive atmosphere and adjust the TV receiver for a clear picture and good sound.

DURING THE TELECAST:

The classroom teacher should be in position to watch both the receiver and the students.

Supervise your class closely.

Observe students reactions.

Take notes for personal use.

AFTER THE TELECAST:

The sessions after the telecast should be used to promote enthusiasm and to furnish students an opportunity to perform individually. It is essential that some follow-up be provided.

Lead discussions.

Answer questions.

Explain vocabulary.

Lead into related activities (some of which are listed in the Teacher's Guide).

ABOUT THE SERIES

It is hoped that "Geoscope" will be an effective aid for the classroom science program. The series is made up of 30 fifteen minute lessons. The lessons have been paced with the course outline in mind. It is essential that you consider this pacing when you plan your daily lessons. The television lessons are of little value to the students if your classroom work is not correlated with the television lessons. You must provide for individual differences through the depth of study of each topic, not by the length of time spent on the topic.

There will be some demonstrations in the television lessons, but do not let them take the place of classroom demonstrations and activities.

ABOUT THE TEXTBOOK

This series is correlated with the textbook Earth Science - The World We Live In by Namowitz and Stone. This is a very comprehensive textbook and allows for a choice of topics to be studied. Follow your course outline carefully in using this textbook.

ABOUT THE TEACHER

The instructor for "Geoscope" is Mrs. June Gueringer, Science Coordinator for the Edgewood Independent School District. She has a B.A. degree from the University of Texas and an M. Ed. degree from Our Lady of the Lake College. Mrs. June Gueringer taught chemistry and general science at Edgewood High School before assuming her present duties. She is vice-president of Theta Beta Chapter, Delta Kappa Gamma Society.

TELEVISION OUTLINE

Channel 11 Tuesdays and Fridays 9:30, 11:05
1:00, 2:30

Lesson	Date	Topic
1	Sept. 6 - Jan. 21	Chemical Nature of Minerals
2	Sept. 10 - Jan. 24	The Physical Nature of Minerals
3	Spet. 13 - Jan. 28	Identification of Minerals by Tests
4	Sept. 17 - Jan. 31	Rocks
5	Sept. 20 - Feb. 4	Geological Time Table
6	Sept. 24 - Feb. 7	Possils and Earth History
7	Sept. 27 - Feb. 11	Topographic Maps
8	Oct. 1 - Feb. 14	Destructional Forces-Weathering
9	Oct. 4 - Feb. 18	Destructional Forces - Erosion
10	Oct. 8 - Feb. 21	Ground Water
11	Oct. 11 - Feb. 25	Wind
12	Oct. 15 - Feb. 28	Running Water
13	Oct. 18 - Mar. 4	Glaciers
14	Oct. 22 - Mar. 7	Constructional Forces
15	Oct. 25 - Mar. 11	Mountains
16	Oct. 29 - Mar. 18	Earthquakes
17	Nov. 1 - Mar. 21	Sea Floor Topography
18	Nov. 5 - Mar. 25	Waves in the Sea

19	Nov. 8 - Mar. 28	Stars and Galaxies
20	Nov. 12 - April 1	The Solar System
21	Nov. 15 - April 11	Exploring Space
22	Nov. 19 - April 15	The Moon
23	Nov. 22 - April 18	The Earth's Motions
24	Nov. 26 - April 22	Location and Navigation
25	Dec. 3 - April 29	Time
26	Dec. 6 - May 2	The Atmosphere: Solar Radiation
27	Dec. 10- May 6	The Atmosphere: Pressure and Winds
28	Dec. 13 - May 9	Circulation of the Atmosphere
29	Dec. 17 - May 13	Evaporation and Condensation
30	Jan. 10 - May 16	Precipitation

Lesson 1 CHEMICAL NATURE OF MINERALS

Purpose: To introduce minerals and the chemical nature of them

Vocabulary: inorganic, element, compound, atom, crystal

Lesson Outline:

I. Natural inorganic solids

II. Elements

A. Metals

B. Nonmetals

III. Compounds

IV. Chemical composition

Comments:

Help your students with this elementary chemistry. If they become too discouraged with it, go on to the physical properties. Physical properties are used more in identifying minerals and will probably be more fun for the students.

Textbook correlation:

Earth Science - The World We Live In, Chapter 1

Lesson 2 THE PHYSICAL NATURE OF MINERALS

Purpose: To introduce the physical properties of minerals

Vocabulary: hardness, structure, luster, fluorescence, radioactive

Lesson Outline:

I. Introduction to physical properties

II. Inspection

- A. Color
- B. Luster
- C. Crystal shape

III. Special properties

- A. Magnetic
- B. Taste
- C. Fluorescence
- D. Radioactive

Comments:

Plan activities so that your students can study the physical properties of minerals first hand. Plan to use the film Understanding Our Earth: Rocks and Minerals as you develop this chapter.

Textbook correlation:

Earth Science - The World We Live In, Chapter 2

Lesson 3 IDENTIFICATION OF MINERALS BY TESTS

Purpose: To demonstrate some of the simple tests used in identifying minerals

Vocabulary: streak, cleavage, specific gravity, fracture

Lesson Outline:

I. Streak

II. Cleavage

III. Hardness

IV. Specific gravity

V. The acid test

Comments:

The demonstrations in this lesson should be done by all students in the classroom. A rock-collecting field trip can be a good learning experience at this time.

Textbook correlation:

Earth Science - The World We Live In, Chapter 2

Lesson 4 ROCKS

Purpose: To examine the kinds of rocks found in the crust of the earth

Vocabulary: igneous, extrusive, intrusive, magma, sedimentary, metamorphic, conglomerate

Lesson Outline:

I. Igneous rocks

II. Sedimentary rocks

III. Metamorphic rocks

Comments:

The rocks that have been brought in by your students should be examined and classified by them at this time.

Textbook correlation:

Earth Science - The World We Live In. Chapter 4

Lesson 5 GEOLOGICAL TIME TABLE

Purpose: To introduce the geological time table and historical geology

Vocabulary: law of superposition, era, period, paleogeography, unconformities

Lesson Outline:

I. Introduction to geological time periods

II. Precambrian

III. Paleozoic

IV. Mesozoic

V. Cenozoic

Comments:

Students are usually interested in this chapter. If your students are extremely interested in the time periods, you might have them work on special reports using Chapters 21 and 23 plus library sources of reference.

Textbook correlation:

Earth Science - The World We Live In, Chapter 4

Lesson 6 FOSSILS AND EARTH HISTORY

Purpose: To introduce fossils as evidence of life in the past

Vocabulary: fossil, molds, casts, impression, index

Lesson Outline:

I. Fossils

A. Original remains

B. Replaced remains

C. Molds and casts

D. Impressions

II. Index fossils

III. Other measuring techniques

Comments:

Fossils are rather easy to find in our area, and some of your students may already have some. If not, perhaps they can find fossils and bring them to class.

Textbook correlation:

The Earth We Live In, Chapter 21

Lesson 7 TOPOGRAPHIC MAPS

Purpose: To introduce topographic maps

To demonstrate associated activities

Vocabulary: Parallels, meridians, scale, elevation, bench marks

Lesson Outline:

I. Topography

II. Latitude and longitude

III. Scale

IV. Contour lines

V. Profiles

VI. Three dimensional models

Comments:

This topic can be taught better in the classroom if you have some topographic maps. Even if you do not have the maps, the students can make the three dimensional models and the profiles.

Textbook correlation:

Earth Science - The World We Live In, Chapter 5

Lesson 8 — DESTRUCTIONAL FORCES - WEATHERING

Purpose: To define destructional forces

To study weathering

Vocabulary: weathering, exfoliation, oxidation, carbonation, hydration

Lesson Outline:

I. Forces shape the land

II. Weathering

A. Mechanical

B. Chemical

Comments:

This lesson starts out in a rather general way to introduce the destructional and constructional forces that will be studied for the next several weeks. Use as many pictures and other visuals as you can to develop weathering concepts.

Textbook correlation:

Earth Science - The World We Live In, Chapter 6

Lesson 9 DESTRUCTIONAL FORCES - EROSION

Purpose: To study erosion as a destructional forces

Vocabulary: contour, plowing, erosion, depletion, sheet wash, gullying, soil

Lesson Outline:

I. Erosion by rain

A. Sheet wash

B. Gullying

II. Erosion by wind

III. Soil depletion

Comments:

Plan to use the film Understanding Our Earth: Soil when developing this topic.

Texbook correlation:

Earth Science - The World We Live In, Chapter 6

Lesson 10 GROUND WATER

Purpose: To study the water cycle

To develop understanding about ground water

Vocabulary: porosity, permability, water table, springs, artesian, geysers, Karst topography

Lesson Outline:

I. Hydrologic cycle

II. Water resources in Texas

III. Ground water

Comments:

This is a good time to plan a field trip to a cave or to encourage your students to go on their own. Stimulate interest in our water supply in San Antonio, Our artesian wells make our water supply a little unusual.

Textbook correlation:

Earth Science - The World We Live In, Chapter 7

Lesson 11 WIND

Purpose: To study the work of the wind

Vocabulary: abrasion, deflation, dunes

Lesson Outline:

I. Materials carried by the wind

II. Sand dunes

III. Sand dune materials

Comments:

If your students have not seen sand dunes, use as many pictures as you can find. The National Geographic is a good source.

Textbook correlation:

Earth Science - The Earth We Live In, Chapter 8

Lesson 12 **RUNNING WATER**

Purpose: To develop an awareness in the force of moving water
To study the life cycle of a stream

Vocabulary: meander, rapids, solution, suspension, oxbow lake

Lesson Outline:

I. The source of a river

II. Carrying power

III. Waterfalls

IV. Deltas

V. Life Cycle of a stream

A. Youth

B. Maturity

C. Old age

Comments:

Plan some model making activities to show some of the features of streams. Provide pictures to reinforce these ideas.

Textbook correlation:

Earth Science - The World We Live In, Chapter 9

Lesson 13 GLACIERS

Purpose: To develop understanding of the origin and occurrance of glaciers
To study geological features that show evidence of former glacial action

Vocabulary: moraines, matterhorns, drumlin

Lesson Outline:

I. Definition of glaciers

II. Glacier movement

III. Glacier deposits

IV. The Ice Age

Comments:

Glaciers are fascinating to study. Perhaps we are a bit unfamiliar with them in this area of the country. Plan to use the film Understanding Our Earth: Glaciers.

Textbook correlation:

Earth Science - The World We Live In, Chapter 10

Lesson 14 CONSTRUCTIONAL FORCES

Purpose: To develop understanding of the constructional forces
To gain knowledge about how constructional forces shape the surface of the land

Vocabulary: diastrophism, anticlines, synclines, scarp, vulcanism, lava, sills, dikes, laccoliths, batholiths

Lesson Outline:

I. Diastrophism

A. Folds

B. Faults

II. Vulcanism

A. Volcanoes

B. Intrusions

Comments:

These chapters provide some good opportunities for the students to make models and charts. Land forms are more interesting in three dimension.

Textbook correlation:

Earth Science - The World We Live In, Chapter 11 and 12

Lesson 15 MOUNTAINS

Purpose: To study the processes by which various kinds of mountains were formed.
To study the life cycle of mountains

Vocabulary: geosyncline, isostacy, fold, fault-block

Lesson Outline:

I. Kinds of mountains

A. Fold

B. Fault-block

C. Volcanic

D. Dome

II. Life history of mountains

A. Youth

B. Maturity

C. Old age

Comments:

This is another topic where models would be very helpful in demonstrating basic principles.

Textbook correlation:

Earth Science - The World We Live In, Chapter 13

Lesson 16 EARTHQUAKES

Purpose: To study the earthquake as a natural destructive phenomenon and as a geological constructional force.

Vocabulary: seismograph, focus, epicenter

Lesson Outline:

I. Causes of earthquakes

II. Seismographs

III. Earthquake regions

Comments:

Students find earthquakes interesting. However, do not spend too much time on details in this chapter.

Textbook correlation:

Earth Science - The World We Live In , Chapter 14

Lesson 17 SEA FLOOR TOPOGRAPHY

Purpose: To gain knowledge of the geological aspects of oceanography

Vocabulary: continental shelf, continental slope, ridges, trenches

Lesson Outline:

I. Continental shelf

II. Continental slope

III. Sea basins

IV. Ridges, trenches, canyons

V. Sediments

Comments:

There is a great deal of material to cover in this unit on oceanography. Teach the basic concepts and those topics that seem to interest the students the most. Do not try to cover all topics.

Textbook correlation:

Earth Science - The World We Live In, Chapter 18

Lesson 18 WAVES IN THE SEA

Purpose: To study waves of the sea
To develop understanding of wave characteristics

Vocabulary: crest, trough, refraction, undertow, wave length, period

Lesson Outline:

I. Characteristics of waves

II. Waves and wind

III. Waves near the shore

IV. Giant waves

Comments:

The principles of wave motion are very important since they apply to other areas of science also. The features of water waves and light waves are the same.

Textbook correlation:

Earth Science - The World We Live In, Chapter 20

Lesson 19 STARS AND GALAXIES

Purpose: To acquire an understanding of the stars, galaxies, and constellations

Vocabulary: density, mass, parallax, light year, astronomical unit, magnitude

Lesson Outline:

I. Astronomy

II. Galaxies

III. Characteristics of stars

IV. Constellations

Comments:

This chapter should be fun. Be sure to give some assignments in sky watching, and have the students make some star charts of what they see.

Textbook correlation:

Earth Science - The World We Live In, Chapter 24

Lesson 20 THE SOLAR SYSTEM

Purpose: To gain an understanding of the sun and its solar system

Vocabulary: corona, sunspots, prominences, satellites

Lesson Outline:

I. Theories of origin

II. The sun

III. The planets

A. Inner

B. Outer

IV. Asteroids

V. Comets and meteors

Comments:

This could be a good time to have individual or group reports on the various planets. If you think your class is ready, introduce Kepler's laws. With a few good demonstrations most of your students should gain some knowledge of planetary motion.

Textbook correlation:

Earth Science, The World We Live In, Chapter 25

Lesson 21 EXPLORING SPACE

Purpose: To develop an understanding of rocketry and space travel

Vocabulary: escape velocity, orbit, perigee, apogee, propellants

Lesson Outline:

I. The history of rockets

II. Space travel

A. Escape velocity

B. Orbits

C. Propellants

Comments:

Plan to use current information to develop this topic. Newspaper and magazine articles about the progress of the Apollo program appear frequently. You should be on the mailing list to receive educational aids from NASA. They are very helpful.

Textbook correlation:

Earth Science - The World We Live In, Chapter 26

Lesson 22 THE MOON

Purpose: To gain knowledge about the moon and its relationship to the earth

Vocabulary: eclipse, phases, lunar

Lesson Outline:

I. Physical features of the moon

II. Motions of the moon

III. Eclipses

IV. The moon and the tides

Comments:

This topic is timely. For general information, your students should know more about the moon and what man is doing to explore it. Collect photographs of the moon's surface. Call attention to the phases of the moon.

Textbook correlation:

Earth Science - The World We Live In, Chapter 27

Lesson 23 THE EARTH'S MOTIONS

Purpose: To acquire an understanding of the earth's motions

Vocabulary: revolution, rotation, period of revolution, foucault pendulum, equinox, solstice

Lesson Outline:

I. The earth's revolution

II. The earth's rotation

III. The inclination of the earth's axis

Comments:

The earth's motions are important in regulating the length of the day and the seasons of the year.

Textbook correlation:

Earth Science - The World We Live In, Chapter 28

Lesson 24 LOCATION AND NAVIGATION

Purpose: To study location schemes
To learn some of the techniques of navigation

Vocabulary: latitude, longitude, parallels, meridians, chronometer, radar

Lesson Outline:

I. Latitude

II. Longitude

III. Finding north

Comments:

Plan some activities such as locating cities by latitude and longitude.

Textbook correlation:

Earth Science - The World We live In, Chapter 29

Lesson 25 TIME

Purpose: To develop an understanding of time

Vocabulary: time meridians, apparent solar day, mean solar day, international date line

Lesson Outline:

I. Units of time

II. Time belts

III. The international date line

IV. The calendar

Comments:

Use the "General Questions" at the end of the chapter to make certain your students understand time belts. Discuss the world calendar.

Textbook correlation:

Earth Science - The World We Live In, Chapter 30

Lesson 26 THE ATMOSPHERE: SOLAR RADIATION

Purpose: To develop the concepts of solar radiation and its effect on our atmosphere

Vocabulary: troposphere, ozone, radiation, conduction, convection

Lesson Outline:

I. The atmosphere

II. The Van Allen belts

III. Solar radiation

IV. Transfer of heat

V. Temperature

Comments:

Plan activities to develop this topic. This might be a good time to have some oral reports.

Textbook correlation:

Earth Science - The World We Live In, Chapter 31

Lesson 27 THE ATMOSPHERE: PRESSURE AND WINDS

Purpose: To study atmospheric pressure and winds

Vocabulary: barometer, millibar, isobar, highs, lows

Lesson Outline:

I. Pressure

A. Atmospheric pressure

B. Barometers

II. Winds

A. Origin of winds

B. Wind vane

C. Anemometer

Comments:

Keep daily records of barometer readings and wind direction and speed for one week. A field trip to the weather station would be interesting.

Textbook correlation:

Earth Science - The World We Live In, Chapter 32

Lesson 28 CIRCULATION OF THE ATMOSPHERE

Purpose: To develop understanding of the circulation of winds on the earth

Vocabulary: monsoon winds, jet stream

Lesson Outline:

I. Circulation without rotation

II. The pressure belts

III. Land and sea breezes

IV. The jet stream

Comments:

This is an extension of the material covered in the previous chapter and will help to give an overall view to the topic of wind. This lesson could serve as a review.

Textbook correlation:

Earth Science - The World We Live In, Chapter 33

Lesson 29 EVAPORATION AND CONDENSATION

Purpose: To study evaporation and condensation and to relate it to the study of weather

Vocabulary: hygrometer, dew point, visibility, relative humidity

Lesson Outline:

I. States of water

II. Evaporation

III. Humidity

IV. Condensation

V. Clouds

VI. Smog

Comments:

This is a good time to have your students keep a record of the clouds they see for about three days. Maybe we will be lucky and have some precipitation to go with the next chapter.

Textbook correlation:

Earth Science - The World We Live In, Chapter 34

Lesson 30 PRECIPITATION

Purpose: To study the forms of precipitation

Vocabulary: precipitation

Lesson Outline:

I. Forms of precipitation

II. Measuring precipitation

III. Rainmaking

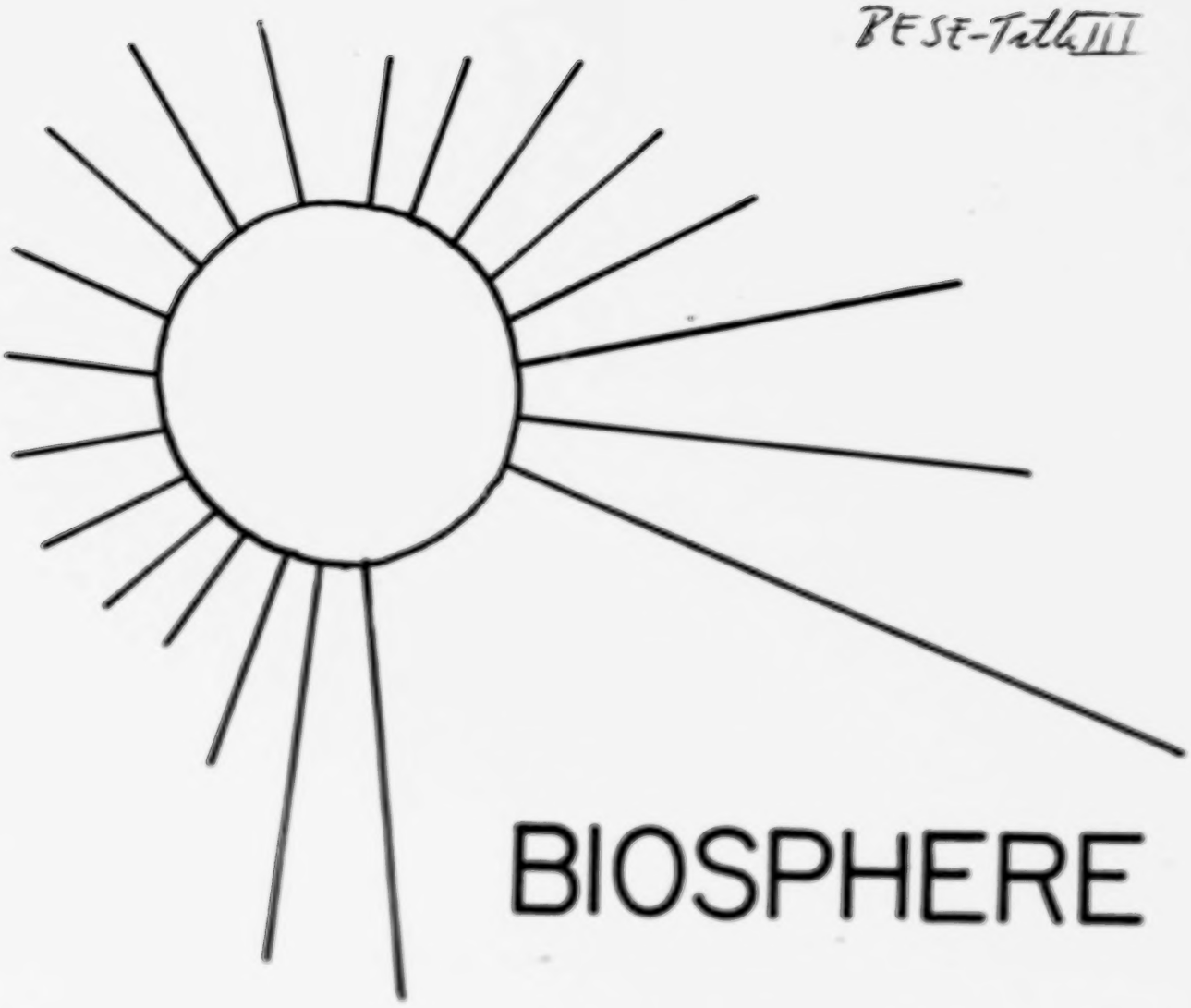
Comments:

Make a simple rain gauge and hope you will get a chance to use it before the end of the semester.

Textbook correlation:

Earth Science - The World We Live In, Chapter 35

BEST-Title III



BIOSPHERE

TEACHER'S GUIDE — 7

EDGEWOOD ISD
INSTRUCTIONAL
TELEVISION
KHS 77

BIOSPHERE

TEACHER'S TELEVISION GUIDE

LIFE SCIENCE - GRADE 7

EDGEWOOD INDEPENDENT SCHOOL DISTRICT

INSTRUCTIONAL TELEVISION

KHS 77 - TV

MRS. JUNE GUERINGER, SCIENCE COORDINATOR

COORDINATOR'S MESSAGE

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ABOUT THE TEXTBOOK

This series is correlated with the textbook Life Science - A Modern Course by Mason and Peters. The philosophy of the authors is to provide a course that will prepare the students for further study in more advanced science courses. The concepts presented have been chosen because they are considered appropriate for the interests, needs, and abilities of seventh grade students.

ABOUT THE TEACHER

The instructor for "Biosphere" is Mrs. June Gueringer, Science Coordinator for the Edgewood Independent School District. She has a B.A. degree from the University of Texas and an M. Ed. degree from Our Lady of the Lake College. Mrs. Gueringer taught chemistry and general science at Edgewood High School before assuming her present duties. She is vice-president of Theta Beta Chapter, Delta Kappa Gamma Society.

TELEVISION OUTLINE

Channel 11 Mondays and Thursdays 9:30, 11:05
1:00, 2:30

Lesson	Date	Title
1.	Sept. 9, Jan. 20	Science Verses Superstition
2.	Sept. 14, Jan. 23	Let's Learn Science
3.	Sept. 16, Jan. 27	Living Organisms
4.	Sept. 19, Jan. 30	Looking at Cells
5.	Sept. 23, Feb. 3	Cell Organization
6.	Sept. 26, Feb. 10	Living or Nonliving?
7.	Sept. 30, Feb. 13	The Nature of Matter
8.	Oct. 3, Feb. 17	Energy
9.	Oct. 7, Feb. 20	Protoplasm
10.	Oct. 10, Feb. 24	Photosynthesis
11.	Oct. 14, Feb. 27	Classification Systems
12.	Oct. 17, Mar. 3	Simple Plants
13.	Oct. 21, Mar. 6	Flowering and Non-flowering Seed Plants
14.	Oct. 24, Mar. 10	Adaptation
15.	Oct. 28, Mar. 17	Spiders
16.	Oct. 31, Mar. 20	Reptiles
17.	Nov. 4, Mar. 24	Mammals
18.	Nov. 7, Mar. 31	Hamburgers and Lollipops
19.	Nov. 14, April 10	Digestion

20.	Nov. 18, April 14	Circulation
21.	Nov. 21, April 17	Respiration
22.	Nov. 25, April 21	Skeletal System
23.	Dec. 2, April 24	Nervous System
24.	Dec. 5, April 28	The Senses
25.	Dec. 9, May 1	Behavior
26.	Dec. 12, May 5	Cell Division
27.	Dec. 16, May 8	Heredity
28.	Jan. 9, May 12	They Led the Way
29.	Jan. 13, May 15	Biomes
30.	Jan. 16, May 19	Balance in Nature

Outline Subject to Revision

Lesson 1 SCIENCE VERSES SUPERSTITION

Purpose: To encourage students to rely on scientific methods rather than on superstition in developing understandings.

Vocabulary: superstitions, science

Lesson Outline:

I. Superstition

II. Science

Comments:

The 11 minute film Science and Superstition is used in this lesson. It should be good review for the first two problems in your textbook.

Textbook correlation:

Lesson 2 LET'S LEARN SCIENCE

Purpose: To introduce the scientific method

Vocabulary: science, hypotheses, attitudes, accuracy, relevant, valid

Lesson Outline:

I. What is science?

II. Scientific attitudes

III. Scientific procedures

Comments:

There may be words in the text that have little or no meaning to your students. Develop inquiry techniques with your students through the study of these unfamiliar words.

Textbook correlation:

Life Science - A Modern Course, Unit 1

Lesson 3 LIVING ORGANISMS

Purpose: To develop an understanding of living organisms
To point out likenesses and differences in living organisms

Vocabulary: adaptations, protoplasm

Lesson Outline:

I. Differences

II. Similarities

III. Effects of environment

IV. Struggle for existence

Comments:

We have used a number of film clips to get across the ideas in this lesson. Please follow up by asking questions to see how much your students comprehended from this lesson. Be sure that your class has an aquarium or some other means of studying living things.

Textbook correlation:

Life Science - A Modern Course, Unit 2

Lesson 4 LOOKING AT CELLS

Purpose: To develop skills in the use of the microscope
To develop an understanding of the structures in cells

Vocabulary: cells, nucleus, cytoplasm, chromatin, mitochrondia, vacuole, microscope

Lesson Outline:

I. The microscope

II. The model cell

III. Plant cells

IV. Animal cells

Comments:

Try to use your microscopes as follow up for this lesson. Be sure that your students understand that a model cell is just that and not an actual cell of any particular kind.

Textbook correlation:

Life Science - A Modern Course, Unit 2

Lesson 5 CELL ORGANIZATION

Purpose: To show the organization of cells in living organisms

Vocabulary: tissues, organs, organ systems

Lesson Outline:

I. Tissues

II. Organs

III. Organ system

IV. Organisms

Comments:

The emphasis in this lesson is on the organization of the parts of a living organism.

Textbook correlation:

Life Science - A Modern Course, Unit 2

Lesson 6 LIVING OR NONLIVING?

Purpose: To determine the characteristics that distinguish living things from nonliving objects

Vocabulary: characteristic

Lesson Outline:

I. Movement

II. Growth

III. Structural pattern

IV. Self maintenance

V. Reproduction

Comments:

This lesson is an effort to get response from the students. At the end of the lesson, see if they have reached any conclusions about the distinguishing characteristics of living things.

Textbook correlation:

Life Science - A Modern Course, Unit 3

Lesson 7 THE NATURE OF MATTER

Purpose: To develop the concepts of composition of matter

Vocabulary: proton, neutron, electron, element, compound

Lesson Outline:

I. Properties

II. Atoms and molecules

III. Physical and chemical changes

Comments:

This is merely an introduction to the nature of matter. Do not get bogged down here trying to go into too much depth. The students will have more of this in other science courses.

Textbook correlation:

Life Science - A Modern Course, Unit 3

Lesson 8 ENERGY

Purpose: To develop understanding of energy as a scientific term

Vocabulary: potential, kinetic

Lesson Outline:

I. Potential energy

II. Kinetic energy

III. Forms of energy

IV. Energy of living things

Comments:

The main idea in this lesson is to give background for your study of energy as it is related to living organisms. There has been some criticism of the textbook going into photosynthesis from here. However, in the light of the study of energy in this unit, it is a logical sequence.

Textbook correlation:

Life Science - A Modern Course, Unit 3

Lesson 9 PROTOPLASM

Purpose: To develop an understanding of the chemical nature of protoplasm

Vocabulary: amino acids, inorganic, organic, enzymes, colloidal

Lesson Outline:

I. Water

II. Minerals

III. Carbohydrates

IV. Fats

V. Proteins

Comments:

It is hoped that the students will recognize the principal compounds in all protoplasm as the same terms used in food nutrients. They may be familiar with these terms in that light.

Textbook correlation:

Life Science - A Modern Course, Unit 3

Lesson 10 PHOTOSYNTHESIS

Purpose: To introduce photosynthesis

Vocabulary: chlorophyll, ATP, photosynthesis

Lesson Outline:

I. Historical

II. Raw materials

III. Chlorophyll

IV. Sunlight

Comments:

You will have to follow up on this topic to make sure your students understand photosynthesis.

Textbook correlation:

Life Science - A Modern Course, Unit 4

Lesson 11 CLASSIFICATION SYSTEMS

Purpose: To introduce classification of living things

Vocabulary: binominal system, phylum, species, genus

Lesson Outline:

I. Historical classification

II. Classification of living things

A. Plant

B. Animal

C. Protist

Comments:

We do not want to burden the students with too much memorization. However, they do need to know how and why living organisms are classifield.

Textbook correlation:

Life Science - A Modern Course, Unit 5

Lesson 12 SIMPLE PLANTS

Purpose: To introduce the simple plants and to describe the structural parts

Vocabulary: algae, diaton, fungi, bryophytes

Lesson Outline:

I. Algae

II. Fungi

III. Bryophytes

Comments:

Plan to have some activities with the simple plants. Collect samples of algae and fungi and examine them under the microscope.

Textbook correlation:

Life Science - A Modern Course, Unit 5

Lesson 13 — FLOWERING AND NON-FLOWERING SEED PLANTS

Purpose: To introduce the more complex plants and to describe the structural parts

Vocabulary: conifers, gymnosperms, angiosperms, transpiration

Lesson Outline:

I. Gymnosperms

II. Angiosperms

A. Monocots

B. Dicots

Comments:

The students will probably be able to bring in many things of interest to use with this unit. Make the most of leaf and flower collections.

Textbook correlation:

Life Science - A Modern Course, Unit 5

Lesson 14 ADAPTATIONS

Purpose: To provide illustrations of plant and animal adaptations to the environment

Vocabulary: adaptations, habitat, environment

Lesson Outline:

I. Environment

II. Food getting adaptations

III. Protective adaptations

IV. Habitats

Comments:

The film Adaptations of Plants and Animals is used in this lesson. It is good background material. This is a good time to construct an ant nest.

Textbook correlation:

Life Science - A Modern Course, Unit 6

Lesson 15 SPIDERS

Purpose: To develop some concepts about spiders

Vocabulary: arachnids

Lesson Outline:

I. Orb-Weaver spider

II. Bolas spider

III. Diving spider

IV. Trap door spider

Comments:

This is another of a series of films that are being used in conjunction with this chapter. The film used in this lesson is Spider Engineers. You might want to use some of the other district films with this unit. Amphibians is a good film to use at this time.

Textbook correlation:

Life Science - A Modern Course, Unit 6

Lesson 16 REPTILES

Purpose: To study the characteristics of reptiles

Vocabulary: extinct, molt

Lesson Outline:

I. Introduction

II. Reproduction processes

III. Feeding habits

IV. Special habitats

Comments:

The film Reptiles is used in this lesson. You may want to use the film Birds of the Countryside in your classroom.

Textbook correlation:

Life Science - A Modern Course, Unit 6

Lesson 17 MAMMALS

Purpose: To learn the characteristics of mammals

Vocabulary: mammals, primates

Lesson Outline:

I. Aquatic mammals

II. Flying mammals

III. Land mammals

Comments:

The film Blind As a Bat is used in this lesson. The final few minutes are devoted to man and his unique features.

Textbook correlation:

Life Science - A Modern Course, Unit 6

Lesson 18 HAMBURGERS AND LOLLIPOPS

Purpose: To develop a basic understanding of food nutrients necessary for body growth and maintenance.

Vocabulary: nutrient, glucose, minerals, vitamins, amino acids

Lesson Outline:

I. Food needs

A. For energy

B. For growth and repair

II. Food nutrients

A. Carbohydrates

B. Fats

C. Proteins

D. Minerals

E. Vitamins

F. Water

Comments:

This topic is discussed in health classes also. Because of the importance of the subject, some duplication will not matter. Be sure to demonstrate the tests for starch, sugar, fat and protein. A good activity for this topic is chart making to illustrate a balanced diet.

Textbook correlation:

Life Science - A Modern Course, Unit 7

Lesson 19 DIGESTION

Purpose: To study the organs and enzymes of the digestion system

Vocabulary: digestion, enzymes, digestive juices

Lesson Outline:

I. Mouth

II. Esophagus

III. Stomach

IV. Intestines

Comments:

Please make good use of the summary of digestion chart on page 169 of your textbook. Demonstrate the tests for enzymes that are described in the textbook.

Textbook correlation:

Life Science - A Modern Course, Unit 7

Lesson 20 CIRCULATION

Purpose: To study the characteristics and functions of the circulation system

Vocabulary: blood pressure, arteries, capillaries, heartbeat, veins

Lesson Outline:

I. Blood vessels

II. Heart

III. Blood

Comments:

Obtain a pig or beef heart for your class to examine. Typing blood is an interesting activity also. The local Heart Association office may supply you with good visual aids.

Textbook correlation:

Life Science - A Modern Course, Unit 7

Lesson 21 RESPIRATION

Purpose: To study the organs and functions of the respiratory system

Vocabulary: pharynx, glottis, larynx, trachea, bronchi, alveoli

Lesson Outline:

I. Parts of the respiratory system

II. Mechanics of breathing

III. Air in the lungs

Comments:

Some follow-up is very necessary after this lesson. Have the students draw and label the respiratory system. The names of the parts are difficult to learn. You may have to devise some type of game activity to reinforce this learning.

Textbook correlation:

Life Science - A Modern Course, Unit 7

Lesson 22 SKELETAL SYSTEM

Purpose: To study the parts and functions of the skeletal system

Vocabulary: joint, marrow, ligaments, vertebrae

Lesson Outline:

I. Parts of the skeleton

A. Axial skeleton

B. Appendicular skeleton

II. Functions

A. Support

B. Protection

C. Locomotion

III. Bone Structure

Comments:

We will use a skeleton as the chief visual aid for this lesson. Try to use as many visual aids as possible when you develop this topic.

Textbook correlation:

Life Science - A Modern Course, Unit 7

Lesson 23 THE NERVOUS SYSTEM

Purpose: To study the parts and function of the nervous system

Vocabulary: neurons, dendrites, synapse, nerves

Lesson Outline:

I. Neurons

II. Peripheral nervous system

III. Autonomic nervous system

IV. Central nervous system

Comments:

Discuss the main functions of the different parts of the nervous system. Stress the significance of the nervous system as the control center of the body.

Textbook correlation:

Life Science - A Modern Course, Unit 8

Lesson 24 THE SENSES

Purpose: To develop concepts about the structures of the body called the receptors
To gain knowledge about the functions of these receptors

Vocabulary: receptors, cornea, auditory nerve

Lesson Outline:

I. See

II. Hear

III. Taste

IV. Smell

V. Feel

Comments:

Discuss anatomical features of the eye and ear using models or charts.

Textbook correlation:

Life Science - A Modern Course, Unit 8

Lesson 25 BEHAVIOR

Purpose: To make the students aware of different types of behavior

Vocabulary: reflex arc, habit, adolescence

Lesson Outline:

I. Inborn behavior

II. Simple reflex action

III. Conditioned reflexes

IV. Habits

V. Man's ability to learn

Comments:

Follow up with a discussion of the types of behavior and learning ability. Mention man's use of symbols in connection with language development.

Textbook correlation:

Life Science - A Modern Course, Unit 8

Lesson 26 CELL DIVISON

Purpose: To develop understanding of growth, development, and division of various cells

Vocabulary: chromosome, mitosis, meiosis, binary fission

Lesson Outline:

I. Mitosis

A. Cell control

B. The chromosome

C. Phases

II. Meiosis

Comments:

We will try to give this information a very simplified treatment. Try to develop it more fully as you discuss the topic with your students.

Textbook correlation:

Life Science - A Modern Course, Unit 9

Lesson 27 HEREDITY

Purpose: To develop understanding of the basic principles of heredity

Vocabulary: chromosomes, homologous, genes, dominant, recessive, heterozygous, gametes, mutation

Lesson Outline:

I. Mendel's experiment

II. Genes and chromosomes

III. Dominance

IV. Mutation

Comments:

This is a topic that is very interesting to most students. Please continue to develop the topic after the television lesson.

Textbook correlation:

Life Science - A Modern Course, Unit 9

Lesson 28 THEY LED THE WAY

Purpose: To learn about the work of a few scientists who contributed to the development of medical science

Vocabulary: disease, vaccination, "wonder drugs"

Lesson Outline:

I. Hippocrates

II. Edward Jenner

III. Joseph Lister

IV. Louis Pasteur

V. Robert Koch

Comments:

A good follow up activity for this lesson is deeper study of the lives of medical scientists. A study of some of the more modern men of medicine could be interesting.

Textbook correlation:

Life Science - A Modern Course, Unit 10

Lesson 29 BIOMES

Purpose: To describe some of the major biomes
To help students realize that each biome has its own characteristic plants and animals

Vocabulary: habitat, biome, prairie, savannas

Lesson Outline:

I. Tundra

II. Taiga

III. Temperate deciduous forest

IV. Grasslands

V. Desert

VI. Savannas

VII. Tropical rain forests

VIII. Water habitats

Comments:

This topic will broaden the outlook for most of us who have not traveled extensively. Make sure your students know the characteristics of each biome.

Textbook correlation:

Life Science - A Modern Course, Unit 11

Lesson 30 BALANCE IN NATURE

Purpose: To show the relation of living organisms to each other and to their environment

Vocabulary: aerobic, anaerobic, transpiration, symbiosis

Lesson Outline:

I. Interrelationships of organisms

II. The carbon dioxide cycle

III. The nitrogen cycle

IV. Food chains

Comments:

This is a good place to conclude the study of Life Science for the year. The balance of nature is the first topic studied in Biology when the students get to the tenth grade.

Textbook correlation:

Life Science - A Modern Course, Unit 11